

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Previously Presented) A method for modulating the morphology of softwood pulp fibers comprising the steps of

subjecting the pulp fibers to a metal ion-activated peroxide treatment carried out at a pH of between about 1 and about 9 and

subjecting the treated pulp fibers to a refining treatment to form refined paper making pulp fibers.

Claim 2. (Original) The method of Claim 1 wherein said metal ion is a transitional metal ion.

Claim 3. (Original) The method of Claim 1 wherein said metal ion is iron.

Claim 4. (Original) The method of Claim 1 wherein said pH is between about 3 and about 7.

Claim 5. (Original) The method of Claim 1 wherein the fibers are subjected to the solution at temperatures between about 40 degrees C to about 120 degrees C.

Claim 6. (Original) The method of Claim 1 wherein the fibers are subjected to the solution for between about 10 minutes to about 10 hour.

Claim 7. (Original) The method of Claim 1 wherein said peroxide is present with said solution at a concentration of between about 0.2% and about 5% based on pulp.

Claim 8. (Original) The method of Claim 1 wherein said metal ion is present in said solution at a concentration of between about 0.002% and about 0.1% on pulp .

Claim 9. (Currently Amended) The method of Claim 1 wherein said softwood pulp fibers is subjected to said solution for a time sufficient to substantially act on at least the cellulose and hemi-cellulose of the pulp, causing oxidation and oxidative degradation of cellulose fibers.

Claim 10. (Currently Amended) ~~A softwood~~ The pulp of claim 15 wherein said softwood pulp has ~~having~~ a modified morphology, leading to paper making properties substantially functionally equivalent to hardwood pulp papermaking properties.

Claim 11. (Currently Amended) The ~~softwood~~ pulp of Claim 10 wherein the fibers of said softwood pulp, after treatment, exhibit a substantially shorter fiber length and distribution, and enhanced fiber collapsibility, than prior to treatment.

Claim 12. (Currently Amended) The ~~softwood~~ pulp of Claim 9 10 wherein said softwood pulp is oxidatively degraded relative to untreated softwood pulp.

Claim 13. (Currently Amended) The ~~softwood~~ pulp of Claim 10 wherein the softwood pulp exhibits a Canadian Standard Freeness of between about 115 and about 590.

Claim 14. (Currently Amended) The ~~softwood~~ pulp of Claim 13 wherein the softwood pulp exhibits a Kajaani average fiber length of between about 1.0 and 1.9 mm.

Claim 15. (Original) A pulp comprising between about 50% and 90% hardwood pulp and the remainder being softwood pulp which has been subjected to a metal ion-activated peroxide treatment carried out at a pH of between about 2 and about 9 and a refining treatment.

Claim 16. (Original) The pulp of Claim 15 wherein said metal ion is a transitional metal.

Claim 17. (Original) The pulp of Claim 15 wherein said metal ion is iron and said pH is between about 3 and about 7.

Claim 18. (Original) The pulp of Claim 15 wherein said pulp is substantially functionally equivalent to a hardwood pulp as respects the usefulness of the pulp in papermaking.

Claim 19. (Currently Amended) The ~~softwood~~ pulp of Claim 11 wherein the softwood pulp is used to manufacture a paper web material.

Claim 20. (Previously Presented) The method of claim 1 wherein said softwood pulp fibers are Kraft pulp fibers.

Claim 21. (Previously Presented) The method of claim 1 wherein said softwood pulp fibers are Southern Pine pulp fibers.

Claim 22. (Previously Presented) The method of claim 1 wherein said softwood pulp fibers are bleached pulp fibers.

Claim 23. (Previously Presented) The method of claim 1 wherein said softwood pulp fibers are bleached Kraft pulp fibers.

Claim 24. (Previously Presented) The method of claim 1 wherein said refined pulp fibers exhibit a substantially shorter fiber length and distribution and enhanced fiber collapsibility than prior to treatment.

Claim 25. (Previously Presented) The method of claim 1 wherein said refined pulp fibers exhibit paper making properties substantially functionally equivalent to hardwood pulp papermaking properties.

Claim 26. (Previously Presented) The method of claim 1 wherein subjecting comprises treating said pulp fibers with a composition comprising peroxide and metal ions.

Claim 27. (Previously Presented) The method of claim 1 wherein said metal ions are selected from the group consisting of iron, copper, cobalt or a combination of two or more thereof.